

IN THE CLAIMS:

Cancel claim 17 without prejudice or disclaimer.

Please amend the claims as shown below:

Claims 1-17 (canceled)

Claim 18 (currently amended): A heat treatment system ~~as set forth in claim 17, wherein said cooling system further comprises~~ comprising:

a heat treatment furnace for heat-treating an object to be treated;

a throat which is provided in said heat treatment furnace for carrying said object in and out; and

a cooling mechanism for cooling the vicinity of said throat,

wherein said cooling mechanism comprises a ventilating unit having a ventilating port for sending a cooling fluid toward the vicinity of said throat, and a heat exchanger arranged so as to face said ventilating port in the vicinity of said throat;

an intake fan for sucking the cooling fluid in the vicinity of said throat over said heat exchanger;

a duct for forming a circulating path for said cooling fluid between said intake fan and said ventilating unit so that said cooling fluid sucked by said intake fan returns to said ventilating unit;

a filter, provided in said duct or said ventilating unit, for purifying said cooling fluid which is sent by said ventilating unit; and

an intake port which is formed on said duct at least upstream of said filter so that said cooling fluid sent by said ventilating unit is sucked at a different position from a position at which said cooling fluid is sucked by said intake fan.

Claim 19 (previously presented): A heat treatment system as set forth in claim 18, wherein said cooling mechanism further comprises a second heat exchanger which is arranged in said duct between said intake port and said filter so as to cool the cooling fluid which is drawn into said duct from said intake fan and said intake port.

Claim 20 (previously presented): A heat treatment system which is provided with a loading chamber which has a mechanism for carrying an object to be treated in and out of a throat of a bottom portion of a heat treatment furnace and which is separated as an airtight region,

wherein said throat of said bottom portion of said heat treatment furnace is arranged above said loading chamber,

said loading chamber including:

a ventilating unit which has a ventilating port in the vicinity of said throat and a filter for purifying and sending a cooling fluid from the ventilating port to the vicinity of said throat from the side;

a first heat exchanger which is arranged so as to face said ventilating port in the vicinity of said throat;

an intake fan for sucking the cooling fluid in the vicinity of said throat over said first heat exchanger;

a circulating duct which forms a circulating path for said cooling fluid between said intake fan and said ventilating unit so that said cooling fluid sucked by said intake fan returns to said ventilating unit, at least a part of said circulating duct being arranged below said loading chamber;

an intake port which is formed in the part of said circulating duct below said loading chamber so that a part of said cooling fluid sent by said ventilating unit is sucked below said loading chamber; and

a second heat exchanger which is arranged in said circulating duct between said intake port and said filter so that the cooling fluid drawn into said circulating duct from said intake fan and said intake port is cooled.

Claim 21 (currently amended): A method for cooling a loading chamber which is provided with a mechanism for carrying an object to be treated in or out of a throat of a heat treatment furnace in a heat treatment system and which is separated as an airtight region, said method comprising the steps of:

purifying and sending cooling fluid to the vicinity of said throat of said heat treatment furnace;

sucking said cooling fluid, which is sent to the vicinity of said throat, over a heat exchanger, which is arranged in the vicinity of said throat, by ~~means of~~ an intake fan to draw said cooling fluid into a duct which is formed as a circulating path for returning said cooling fluid;

sucking said cooling fluid, which is sent by a ventilating unit, at a different position from a position at which said cooling fluid is sucked by said intake fan, by ~~means of~~ an intake port which is formed on said duct; and

cooling said cooling fluid, which is drawn into said duct from said intake fan and said intake port, by means of a second heat exchanger, which is arranged in said duct downstream of said intake port, to return cooled cooling fluid to said ventilating unit,

wherein said steps are continuously carried out in a process for carrying said object out of at least said throat of said heat treatment furnace.